

Idaho National Engineering and Environmental Laboratory

International Criticality Safety Benchmark Evaluation Project (ICSBEP)

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DOE Nuclear Criticality Safety Program

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NUCLEAR ENERGY AGENCY
ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

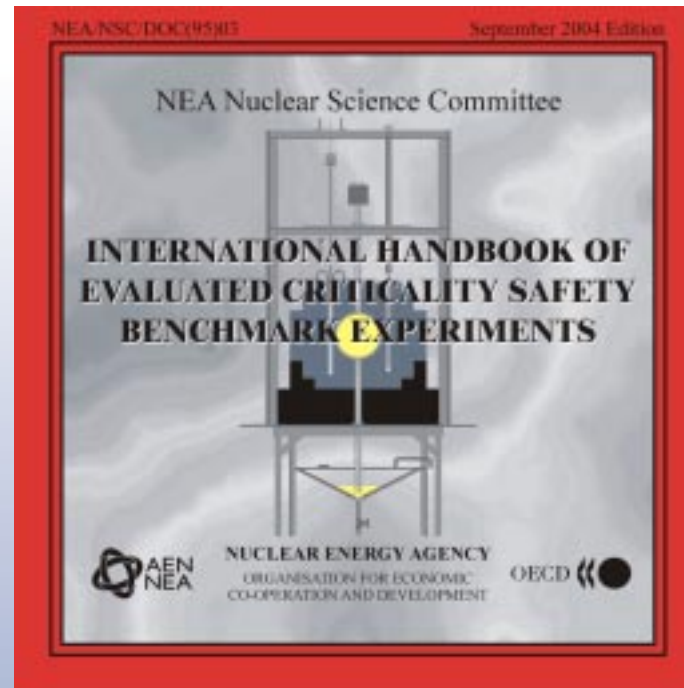


Topics

- *Accomplishments*
- *Areas needing improvements*
- *Proposed deviations from 5-Year Plan*

Accomplishments

International Handbook of Evaluated Criticality Safety Benchmark Experiments



September 2004 Edition

< Spans over 30,000 Pages (~ 2000-3000 new pages)

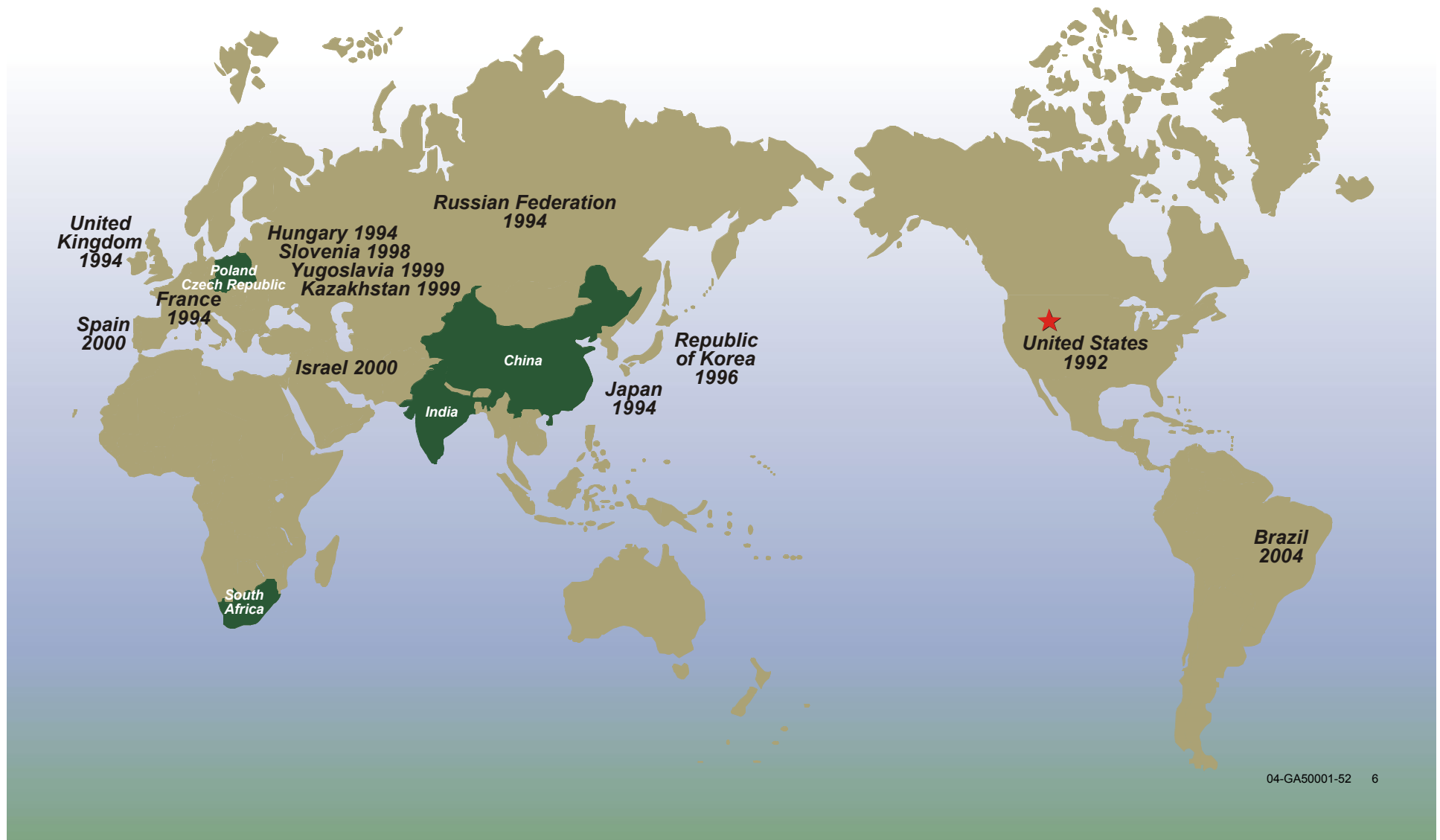
< Evaluation of 382 Experimental Series (~ 32 new evaluations)

- 3325 Critical or Subcritical Configurations (~ 255 new configurations)***
- 3 Criticality Alarm/Shielding Benchmarks (all new)***

Contribution by Laboratory

Laboratory				
ANL				
Hanford				
INEEL				
LANL				
LLNL				
ORNL				
WSMS				

International Participants – ICSBEP



The "International Handbook of Evaluated Criticality Safety Benchmark Experiments" is in use in 58 different countries.



Proprietary data – COGEMA

- ***HTC Program (simulated PWR rods with 37,500 MWd/t)***
 - *Simple arrays (18 experiments)*
 - *Simple arrays with soluble Gd or B poison (41 experiments)*
 - *Pool storage (26 experiments)*
 - *Shipping cask (38 experiments)*
- ***Fission Product / Actinide Programs***
- ***Tight Pitch Lattice Experiments***
- ***Scheduled Release of Data***

Areas Needing Improvement

- *Limited ability to take full advantage of international data*
- *Maintaining and improving quality*
 - *Actively looking for discrepancies*
 - *Additional examples in the Uncertainty Guide*
 - *Maintaining focus*
 - *Meeting schedule*
- *Meeting needs of all users*

Other Areas Needing Improvement

- *Addition of Fundamental Physics Benchmarks*
- *Comprehensive list of experiments not yet evaluated*
- *Guidelines for Performing Experiments*
- *Encourage users to report errors through small monetary rewards*
- *Construct covariance matrices for each experimental series*
- *Provide sensitivity coefficients of k_{eff} to nuclear data*
- *More Frequent Meeting Schedule*
- *Provide training for peer reviewers*
- *More attention to systematic uncertainty*
- *Less attention to uncertainty*
- *Heterogeneous Models of ZPPR / ZPR Experiments*
- *Peer reviewed input listings*

Deviations from 5-Year Plan

- *Appendix E of 5-Year Plan*